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## Adverse Event

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### Global Advisory Committee on Vaccine Safety, 12 December 2005

[WER 2006, vol. 81, 2, pp 15-19](#)  
page 18

Although several cases of GuillainBarr Syndrome (GBS) were recently reported in the United States following the introduction of a tetravalent conjugated meningococcal vaccine, the number of cases reported was similar to what would normally have been expected in this population. The GACVS recommended no change in vaccination policies based on these reports.

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## BCG

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### Temperature sensitivity of vaccines

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page 2

The recommended conditions for storing vaccines used in immunization programmes are shown in Appendix 81\_1. This diagram also indicates the maximum times and temperatures in each case. At the higher levels of the cold chain, i.e., at national (primary), and regional or province level, OPV must be kept frozen between -15oC and -25oC. Freeze-dried vaccines (i.e., BCG, measles, MMR and yellow fever) may also be kept frozen at -15oC to -25oC if cold chain space permits, but this is neither essential nor recommended. At other levels of the cold chain (intermediate vaccine stores and health facilities), these vaccines should be stored between +2oC and +8oC. All other vaccines should be stored at between +2oC and +8oC at all levels of the cold chain. Liquid formulations of vaccines containing diphtheria, pertussis, tetanus, hepatitis B, Haemophilus influenzae type b, IPV and their combinations should not be frozen.

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## DPT

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### Temperature sensitivity of vaccines

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## Diphtheria

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## GACVS

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## General

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### Thermostability of vaccines

[WHO/GPV/98.07](#)  
page 46

Stabilized meningococcal vaccines in the lyophilized state can be stored at refrigerator temperatures for two years.

### Thermostability of vaccines

[WHO/GPV/98.07](#)  
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Despite its relative stability, reconstituted meningococcal vaccine should be kept at refrigerator temperatures and should be discarded if not used during the day on which it is reconstituted

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**Immunization in practice: a practical resource guide for Health workers 2004 update\_\_\_\_\_Module 1: Target diseases**

[WHO/IVB/04.06](#)  
page 31

The (meningococcal) vaccine is not effective in young children and infants and so may not be part of routine childhood immunization programmes.

**Immunization in practice: a practical resource guide for Health workers 2004 update\_\_\_\_\_Module 2: The vaccines**

[WHO/IVB/04.06](#)  
page 22

Administration summary: Meningococcal vaccine (see Appendix 2\_16.)

**WHO recommended standards for surveillance of selected vaccine-preventable diseases**

[WHO/V&B/03.01](#)  
page 5

Recommended types of surveillance for bacterial meningitis (including Haemophilus influenzae type b (Hib), Neisseria meningitides, and Streptococcus pneumoniae):

1) Surveillance of suspected and confirmed cases:

A. Epidemic season: routine weekly reporting of surveillance data is recommended from the peripheral level to the intermediate and central levels. Note: During the epidemic season, it is important to have a well-functioning system for reporting cases and deaths of suspected meningitis in all provinces and to have laboratory confirmation of initial cases in every epidemic district.

B. Inter-epidemic season and throughout the year in countries without epidemic meningitis: routine monthly reporting of surveillance data is recommended from the peripheral level to the intermediate and central levels. Note: It is more important to have a well-functioning system in some areas than to have a national system that functions poorly.

C. Designated sites at all levels should report even if there are zero cases (referred to as zero reporting).

2) Probable cases should also be reported if laboratory performance indicator are to be monitored.

**Vaccine introduction guidelines. Adding a vaccine to a national immunization programme: decision and implementation**

[WHO/IVB/05.18](#)  
page 50

Meningococcus A conjugate vaccine:

A well planned and coordinated strategy for introduction will guarantee widespread use of this needed vaccine. This requires not only a sound plan, but the buying in of the user countries.

Estimating local disease burden and vaccine costeffectiveness should be integral components.

## Temperature sensitivity of vaccines

[WHO/IVB/06.10](#)

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## Temperature sensitivity of vaccines

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page 20

Despite its relative stability, reconstituted (meningococcal vaccine) vaccine should be kept at refrigerator temperatures and should be discarded if not used during the day on which it is reconstituted

## State of the art of new vaccines: research and development

[WHO/IVB/06.01](#)

page 37

During the epidemic season in the African meningitis belt, vaccine from an international stockpile is made available to countries through the International Coordinating Group on Vaccine Provision for Epidemic Meningitis (ICG) set up in 1997 by WHO.

## Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006

[WER 2006, vol. 82, 1, pp 1-16](#)

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SAGE requested an urgent expert consultation to review all data on the immunogenicity of fractional doses (of meningococcal vaccine.)

SAGE recognizes the imminent threat of epidemic meningitis in the African Region and the serious shortage of vaccine should this scenario unfold. SAGE concluded that in the event of an epidemic and in the context of vaccine shortage, the national authorities of affected countries should undertake a risk-benefit analysis that recognizes the public health benefits of using fractional doses of licensed polyvalent polysaccharide vaccines during mass vaccination campaigns in order to provide protection to a larger proportion of the population. Limiting vaccination to narrower age groups at highest risk (that is, up to the age of 15 years instead of up to age 29) should also be considered.

## Weekly epidemiological record

WHO recommends that countries with high (>10 cases/100 000 population/year) or intermediate endemic rates (210 cases/100 000 population/year) of invasive meningococcal disease and countries with frequent epidemics should introduce appropriate largescale meningococcal vaccination programmes. In these countries, the vaccine may be administered through routine immunization programmes, supplementary immunization activities (SIAs), for example during outbreaks, or through private vaccination services. Depending on the national epidemiology and socioeconomic resources, countries should select and implement the most appropriate control policy.

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## Weekly epidemiological record

In countries where the disease occurs less frequently (<2 cases per 100 000 population/year), meningococcal vaccination is recommended for defined risk groups, such as children and young adults residing in closed communities, e.g. boarding schools or military camps. Laboratory workers at risk of exposure to meningococci should also be vaccinated. Travellers to high-endemic areas should be vaccinated against the prevalent serogroup(s). In addition, meningococcal vaccination should be offered to all individuals suffering from immunodeficiency, including asplenia, terminal complement deficiencies, or advanced HIV infection.

[WER No. 47, 2011, 86, 521â€“540](#)  
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## Weekly epidemiological record

Conjugate vaccines are preferred over polysaccharide vaccines due to their potential for herd protection and their increased immunogenicity, particularly in children <2 years of age.

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## Weekly epidemiological record

When using conjugate vaccines, one recommended approach is initial mass vaccination of all children and adolescents aged from 9 months to 18 years followed by inclusion of the vaccine in the routine childhood immunization programme. Depending on surveillance data, other age groups can be incorporated into the mass vaccination campaign: in the African meningitis belt the broad age group of 129 years is the target for MenA conjugate vaccination. An alternative strategy would be to use conjugate vaccines for mass vaccination followed every 35 years by SIAs for age groups at particular risk, as dictated by continued surveillance.

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## Weekly epidemiological record

Monovalent MenA conjugate vaccine should be given as one single intramuscular dose to individuals 129 years of age. The possible need for booster doses is not yet established for this vaccine.

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## Weekly epidemiological record

For monovalent MenC conjugate vaccine one single intramuscular dose is recommended for children aged 12 months, teenagers and adults. Children 211 months of age require 2 doses administered at an interval of at least 2 months and a booster about 1 year thereafter. If the primary series is interrupted, vaccination should be resumed without repeating the previous dose.

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## Weekly epidemiological record

Quadrivalent conjugate vaccines (A,C,W135,Y-D and A,C,W135,Y-CRM) should be administered as one single intramuscular dose to individuals aged 2 years. A,C,W135,Y-D is also licensed for children 923 months of age, and given as a 2-dose series, 3 months apart, beginning at age 9 months. If the primary series is interrupted, vaccination should be resumed without repeating the previous dose.

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## Weekly epidemiological record

Polysaccharide vaccines can be used to control outbreaks in countries where limited economic resources or insufficient supply restrict the use of meningococcal conjugate vaccines. In the case of serogroup A or C outbreaks, bivalent A, C polysaccharide vaccine is recommended for mass campaigns. However, due to the limited efficacy of polysaccharide vaccines in children <2 years of age, in confirmed group C outbreaks MenC conjugate vaccines should be used for protection of those aged 224 months. Similarly, during group A outbreaks, MenA conjugate vaccine is the preferred option for protection of children 1224 months of age.

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## Weekly epidemiological record

Meningococcal outbreaks caused by the W135 or Y serogroups require trivalent (A,C,W135) or quadrivalent (A,C,W135,Y) polysaccharide vaccines.

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## Weekly epidemiological record

Meningococcal polysaccharide vaccines should be administered to individuals aged 2 years as one single dose; most polysaccharide vaccines are administered cutaneously. One booster 35 years after the primary dose may be given to persons considered to be at continued high risk of exposure, including some health workers.

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## Weekly epidemiological record

Further studies are needed to determine the frequency of repeat doses of meningococcal vaccines for immunodeficient individuals.

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## Weekly epidemiological record

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For all countries, knowledge of the meningococcal disease burden is essential for making appropriate use of available vaccines. Countries considering the use of meningococcal vaccines should develop the surveillance systems to characterize meningococcal disease epidemiology, including a standard clinical case definition, field investigation of cases and outbreaks, and laboratory capacity for the confirmation and characterization of N. meningitidis. Continued surveillance of invasive meningococcal disease should dictate the need and timing of repeat mass vaccination campaigns.

## Weekly epidemiological record

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page 538

The ongoing efforts to control invasive group A disease should be completed in all countries in the African meningitis belt. WHO stresses the importance of ensuring high quality surveillance in countries introducing the serogroup A meningococcal conjugate vaccine, in order to document its impact on invasive disease and the indirect benefits from reduction in carriage. This effort should also be used to strengthen the routine EPI programme and pharmacovigilance infrastructure in these countries.

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## Hepatitis B

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### Temperature sensitivity of vaccines

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page 2

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## Hib

### WHO recommended standards for surveillance of selected vaccine-preventable diseases

[WHO/V&B/03.01](#)  
page 5

Recommended types of surveillance for bacterial meningitis (including Haemophilus influenzae type b (Hib), Neisseria meningitides, and Streptococcus pneumoniae):

1) Surveillance of suspected and confirmed cases:

A. Epidemic season: routine weekly reporting of surveillance data is recommended from the peripheral level to the intermediate and central levels. Note: During the epidemic season, it is important to have a well-functioning system for reporting cases and deaths of suspected meningitis in all provinces and to have laboratory confirmation of initial cases in every epidemic district.

B. Inter-epidemic season and throughout the year in countries without epidemic meningitis: routine monthly reporting of surveillance data is recommended from the peripheral level to the intermediate and central levels. Note: It is more important to have a well-functioning system in some areas than to have a national system that functions poorly.

C. Designated sites at all levels should report even if there are zero cases (referred to as zero reporting).

2) Probable cases should also be reported if laboratory performance indicator are to be monitored.

### Temperature sensitivity of vaccines

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## MMR

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## Measles

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### Temperature sensitivity of vaccines

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## Mumps

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### Temperature sensitivity of vaccines

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## New Vaccines

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**Immunization in practice: a practical resource guide for Health workers 2004 update \_\_\_\_\_ Module 1: Target diseases**

[WHO/IVB/04.06](#)  
page 31

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**Vaccine introduction guidelines. Adding a vaccine to a national immunization programme: decision and implementation**

[WHO/IVB/05.18](#)  
page 50

Meningococcus A conjugate vaccine:

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## Outbreak Control

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**Conclusions and recommendations from the meeting of the immunization Strategic Advisory Group of Experts (SAGE) - November 2006**

[WER 2006, vol. 82, 1, pp 1-16](#)  
page 13

SAGE requested an urgent expert consultation to review all data on the immunogenicity of fractional doses (of meningococcal vaccine.)

SAGE recognizes the imminent threat of epidemic meningitis in the African Region and the serious shortage of vaccine should this scenario unfold. SAGE concluded that in the event of an epidemic and in the context of vaccine shortage, the national authorities of affected countries should undertake a risk-benefit analysis that recognizes the public health benefits of using fractional doses of licensed polyvalent polysaccharide vaccines during mass vaccination campaigns in order to provide protection to a larger proportion of the population. Limiting vaccination to narrower age groups at highest risk (that is, up to the age of 15 years instead of up to age 29) should also be considered.

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## Pentavalent

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## Policy

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### Thermostability of vaccines

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[WHO/IVB/04.06](#)  
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**Vaccine introduction guidelines. Adding a vaccine to a national immunization programme: decision and implementation**[WHO/IVB/05.18](#)

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**Temperature sensitivity of vaccines**[WHO/IVB/06.10](#)

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**State of the art of new vaccines: research and development**[WHO/IVB/06.01](#)

page 37

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## Polio

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### Temperature sensitivity of vaccines

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## Procurement

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### State of the art of new vaccines: research and development

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## Rubella

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## SAGE - recommend to WHO

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## Tetanus

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## VPD Surveillance

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[WHO/V&B/03.01](#)  
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1) Surveillance of suspected and confirmed cases:

A. Epidemic season: routine weekly reporting of surveillance data is recommended from the peripheral level to the intermediate and central levels. Note: During the epidemic season, it is important to have a well-functioning system for reporting cases and deaths of suspected meningitis in all provinces and to have laboratory confirmation of initial cases in every epidemic district.

B. Inter-epidemic season and throughout the year in countries without epidemic meningitis: routine monthly reporting of surveillance data is recommended from the peripheral level to the intermediate and central levels. Note: It is more important to have a well-functioning system in some areas than to have a national system that functions poorly.

C. Designated sites at all levels should report even if there are zero cases (referred to as zero reporting).

2) Probable cases should also be reported if laboratory performance indicator are to be monitored.

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## Vaccine Administration

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### Immunization in practice: a practical resource guide for Health workers 2004 update\_\_\_\_\_Module 2: The vaccines

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Administration summary: Meningococcal vaccine (see Appendix 2\_16.)

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## Vaccine Handling

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### Thermostability of vaccines

[WHO/GPV/98.07](#)  
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Stabilized meningococcal vaccines in the lyophilized state can be stored at refrigerator temperatures for two years.

### Thermostability of vaccines

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page 46

Despite its relative stability, reconstituted meningococcal vaccine should be kept at refrigerator temperatures and should be discarded if not used during the day on which it is reconstituted

## Temperature sensitivity of vaccines

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page 2

The recommended conditions for storing vaccines used in immunization programmes are shown in Appendix 81\_1. This diagram also indicates the maximum times and temperatures in each case. At the higher levels of the cold chain, i.e., at national (primary), and regional or province level, OPV must be kept frozen between -15oC and -25oC. Freeze-dried vaccines (i.e., BCG, measles, MMR and yellow fever) may also be kept frozen at -15oC to -25oC if cold chain space permits, but this is neither essential nor recommended. At other levels of the cold chain (intermediate vaccine stores and health facilities), these vaccines should be stored between +2oC and +8oC. All other vaccines should be stored at between +2oC and +8oC at all levels of the cold chain. Liquid formulations of vaccines containing diphtheria, pertussis, tetanus, hepatitis B, Haemophilus influenzae type b, IPV and their combinations should not be frozen.

## Temperature sensitivity of vaccines

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Despite its relative stability, reconstituted (meningococcal vaccine) vaccine should be kept at refrigerator temperatures and should be discarded if not used during the day on which it is reconstituted

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## Yellow Fever

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## Temperature sensitivity of vaccines

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page 2

The recommended conditions for storing vaccines used in immunization programmes are shown in Appendix 81\_1. This diagram also indicates the maximum times and temperatures in each case. At the higher levels of the cold chain, i.e., at national (primary), and regional or province level, OPV must be kept frozen between -15oC and -25oC. Freeze-dried vaccines (i.e., BCG, measles, MMR and yellow fever) may also be kept frozen at -15oC to -25oC if cold chain space permits, but this is neither essential nor recommended. At other levels of the cold chain (intermediate vaccine stores and health facilities), these vaccines should be stored between +2oC and +8oC. All other vaccines should be stored at between +2oC and +8oC at all levels of the cold chain. Liquid formulations of vaccines containing diphtheria, pertussis, tetanus, hepatitis B, Haemophilus influenzae type b, IPV and their combinations should not be frozen.